3 Jan. 64

TSD/CAP MEMO #646
3 January 1963

MEMORANDUM FOR : Chief, Special Affairs Staff

ATTENTION : Mr. A. Rodriquez

SUBJECT : Radio Switch Equipment for Demolition Firing Purposes

03 1. After our conversation on this subject on 30 December, the question was discussed with Mr. Jay Alpern, TSD/AOB, and Mr. Lee Poole, TSD/QRF. The following information is forwarded for your consideration as a result of our discussions.

2. Mr. Alpern, 03 Audio Operations Branch, recommends two companies as sources of equipment of this nature. These companies have experience, under classified contracts with TSD, in producing reliable equipment for special purposes of this sort. They also, of course turn out commercial equipment of good quality for normal communications needs. These companies are:

29,08

a. Motorola, Chicago, Illinois
b. Kell, Cambridge, Massachusetts 29,08

The TSD VHF radio switch equipment for demolition needs was developed for us by Motorola. 29,29 'Kell-Com' transistorized sets have been produced to meet the special needs (not for demolition purposes) of other SAS projects.

3. In the opinion of both persons consulted, the expenses noted in our first discussion should have produced a reasonable amount of workable equipment if the source was both capable and reliable. TSD recommends the use of frequencies in the VHF/UHF spectrum for equipment of this sort and crystal tuning control for reasons of reliability, selectivity and rejection of spurious signals.

4. Inexpensive equipment of Japanese or American manufacture in the citizen's band frequency ranges for toys, radio control devices,

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short range communications, etc., is available from many manufacturers. Our Quick Reaction Facility can produce a small number of radio switches based on these devices with a considerably lesser degree of security from false signal triggering with a lead time of 6 to 8 weeks. Simple mechanical protection against accidental triggering can be gained by inclusion of counting switches, for example, which require a preset number of firing impulses intentionally transmitted to produce the final closure of a relay and firing of a charge.

5. Reliability of operation in terms of response to a transmitted signal of a given power is quite difficult to predict when conditions of antenna length, orientation and exposure cannot be foreseen. Location of the receiver in a target building will also have a strong bearing on 'range' from the transmitter. Building construction, intervening obstacles and interference from other nearby radio frequency sources will affect performance of the set.

6. If you wish to discuss the problems in greater depth, we recommend a conference with audio technicians or engineers. It may serve to clarify the appropriate characteristics which special or m modified commercial equipment should possess to meet the needs of your operation. Problems of camouflaging the explosive or incendiary material to serve operational requirements would be minor compared to the necessary consideration of effects on the receiver switch concealed within which could have important effects on performance.

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C/TSD/CAB/SD

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